SAMPLE PROBLEM SET – ANDROID PROGRAMMING

**ANDROID PROGRAMMINGBASICS**

**QUESTION**

Write steps of adding a button in layout. The name of the button should be a string with name btn\_name and value CLICK HERE. Write code of string in strings file.

### QUESTION

Suppose we have a layout like this:



CLICK

Pakistan

When the button is clicked, the value from above TextView should be written to the below TextView. You need to write the code for the event handler defined for button.

### QUESTION

Suppose we have layout like this:



CLICK

Pakistan

When the button is clicked, the message in the TextView should display in a dialog. Write code for event handler of button.

### QUESTION

Write code that starts a new activity named DisplayActivity from MainActivity. Send two numbers from MainActivity to DisplayActivity. The two numbers should be declared as static variables.

### QUESTION

Write code that sends two strings from MainActivity to DisplayActivity. In DisplayActivity, the strings should be concatenated and assigned to a TextView in DisplayActivity.

### QUESTION

Suppose we have a layout like this



RANDOM COUNTER SEND

0

The value is 33

Write code for button RANDOM such that when user click button, a random number from one to hundred is shown in text box. Write code for button COUNTER such that when the user click the button, the value in the TextView start incrementing. Write code for button SEND such that when user click on button, the value in TextView is passed to a new activity (DisplayActivity) shown in the right window above. For the TextView in the right window, you need to define a string “The value is %1d” and assign toTextView.

### QUESTION

Suppose that you have a string defined in strings.xml. The name of the string is country\_name and value is “Pakistan”. Write a program that shows the value of string in a dialog box.

### QUESTION

Suppose you have two TextViews, each containing a number, and a button to add the values of the two TextViews. When the button is clicked, the values of the TextViews are added and result should be shown in console. (Hint: Log.d)

### QUESTION

Write a program that overrides the onStart() and onStop() events of activities. In onStart event, the message should show in console “This is onStart() event”. In onStop event, the message should show in console “This is onStop() event”.

### QUESTION

When the user click on button in MainActivity, the both strings in EditTexts should be passed separately to the DisplayActivity where they are shown as concatenated string in onCreate event of DisplayActivity.

## MainActivity DisplayActivity



CLICK

Pakistan

Abbottabad

Abbottabad, Pakistan

### QUESTION

When the user click on button in MainActivity, both numbers in EditTexts should be passed separately to the RandomActivity where a random number is generated up to the sum of the numbers, as shown below.

## MainActivity RandomActivity



CLICK

50

40

The random number from 0 to 90 is 33

Write code of button click of MainActivity, and onCreate of RandomActivity.

### QUESTION

In a button\_Click event, write code that starts a new activity named DisplayActivity from MainActivity. Send two numbers from MainActivity to DisplayActivity. The two numbers should be shown in two Textviews in the DisplayActivity on oncreate method of DisplayActivity

### QUESTION

Suppose we have layout like this:



CLICK

Pakistan

When the button is clicked, the message in the TextView should display using Log.i. Write code for event handler of button.

### QUESTION

Suppose we have a layout like this



COUNTER

RANDOM

0

The value is 33

Write code for button RANDOM such that when user click button, a random number from one to hundred is shown in text box. Write code for button COUNTER such that when the user click the button, the value in the TextView start incrementing.

# CALLING RESOURCESDYNAMICALLY

### QUESTION

The following layout has three number buttons, a plus and equal operator, and aEditText initialized with a zero “0” string.



1 2 3 + =

0

The user should be able to enter a string of numbers like 12232213. The user need to enter a number, click on + operator, and then input another number. When user click on equal, the result of sum should display in EditText.

### QUESTION

Suppose we have a predefined function that has following prototype:

*String GetComputerChoice().*When this function is called in a button click event, it returns either “fire”,“wood”,or“water”.Inthesamebuttonclickevent,arandomnumberisgeneratedfrom1to 3, such that if 1 is generated, this means, the user gets “fire”, if 2 is generated, the user gets “wood”, and if 3 is generated, the user gets “water”. You need to check against the button click event that which of the computer or user has WON. Show name of winner inToast.

### QUESTION

The following layout has three number buttons, a plus and equal operator, and aEditText initialized with a zero “0” string.



1 2 3 + =

**0**

The user should be able to enter a string of numbers like 12232213. The user need to enter a number, then click on + operator, and then input another number. When user again click on + operator, or the user click on the “=” button, the result of the sum should be displayed in EditText. The following is an example operation of the calculator:

12 + 11 + (show ans as 23) + 2 + (show answer as 25) + 5 = (show answer as 30)

Note: Make a single event handler method for all three number buttons, a single event handler method for plus operator, and a single even handler method for equal operator. You can separately define an equal operator method and call it in the equal button event handler. (Total methods in your application should be at most 4)

### QUESTION

Pass a number from 1 to 3 from the main activity to the DisplayActivity. In DisplayActivity, check which of the number is received, and then write the number in words.

For example, you passed 3 from MainActivity, and in DisplayActivity, you will print “three” as shown below.

MainActivity DisplayActivity



CLICK

3

The received number is three

### QUESTION

Suppose you want to build a game in which a user either can press **fire** or **wood**, and then a random choice is generated for computer. The player that gets fire is the winner. Write the code of the program. Just write the java part.

**Yourchoice Computerchoice**

**wood**

**fire**

**Winner**

**user**



FIRE



WOOD

### QUESTION

You have a layout as given in the following.



The capital of Pakistan is *<textview>*

ISLAMABAD

LAHORE

KARACHI

You need to write a “single method” for all the three buttons. The prototype of method is: public void button\_Click(View view).

In this method, you need to get the text of the button clicked. If the text is matching with the string “ISLAMABAD”, the <textview> should be assigned value ISLAMABAD, otherwise it remains blank.

### QUESTION

Suppose you have an EditText field and two buttons. The first button is labeled as BLUE and the second button is labeled as GREEN. When the BLUE button is clicked, the color of text in EditText should changed to BLUE, and when GREEN button is clicked, the color of text in EditText should change to GREEN. Write also the code of defining the two colors in colors.xml file.

**BROADCAST RECEIVER**

### QUESTION

Suppose you want to define a broadcast receiver for the message android.intent.action.BOOT\_COMPLETED. Write code to register this message in AndroidManifest.xml. Extend a class MyReceiver from BroadReceiver and define onReceive method in that class. Show the message in a dialog window in onReceive method. The prototype of onReceive method is

public void onReceive(Context context, Intent intent);

### QUESTION

Create a custom intent message. Create a broadcast receiver class to receive that message. Subscribe your app to intent message in manifest file. Write code for button\_Click in MainActivity in which the broadcast message is created and sent. Write code for broadcast receiver class and override onReceive in which the broadcast message is received and showed in Log.i. Write code for subscribing the broadcast message in manifest file.

**SPINNER CONTROL**

### QUESTION

Write a program that creates a string array of “cities”. Write a button click event. When the button is clicked, the currently selected value of the spinner should be shown on the screen. No need to write code of assigning data to spinner control.

**RECYCLER VIEW**

### QUESTION

Suppose we have data in this format:

{

{ (“name”, “ali”), (“age”, “23”)},

{ (“name”, “shazia”), (“age”, “22”) }

}

Write code to store above two rows in an ArrayList<HashMap<String, String>> list;

### QUESTION

Create an ArrayList of names and add 3 names into it. Pass the list to the RecyclerView class.

### ANSWER:

ArrayList<String>animalNames = newArrayList<>(); animalNames.add("item 1");

animalNames.add("item2");

animalNames.add("item3");

RecyclerViewrecyclerView = findViewById(R.id.rvAnimals); LinearLayoutManagerlinearLayoutManager = new LinearLayoutManager(this); recyclerView.setLayoutManager(linearLayoutManager);

adapter = new MyRecyclerViewAdapter(this, animalNames); recyclerView.setAdapter(adapter);

**QUESTION**

Write program to insert single item in recycler view at index 2. Suppose we have an ArrayList of names and object name of recyclerview class is “adapter”

### ANSWER:

// Insert single item String item = "Dog"; intinsertIndex = 2;

data.add(insertIndex, item); adapter.notifyItemInserted(insertIndex);

**QUESTION**

Write program to remove single item in recycler view at index 2. Suppose we have an ArrayList of names and object name of recyclerview class is “adapter”

### ANSWER:

// Remove single item intremoveIndex = 2;

data.remove(removeIndex); adapter.notifyItemRemoved(removeIndex);

**QUESTION**

Write program to insert an arraylist of multiple items at index 2 in a recycler view. Suppose we have an ArrayList of names and object name of recyclerview class is “adapter”

### ANSWER:

// Insert multiple items

ArrayList<String> items = new ArrayList<>(); items.add("Hen");

items.add("Chicken"); items.add("Dog");

intinsertIndex = 2; data.addAll(insertIndex, items);

adapter.notifyItemRangeInserted(insertIndex, items.size());

**CONFIRMATION DIALOG**

**QUESTION**

Write a button click event. When the button is clicked, a confirmation dialog should be shown to the user asking “Are you sure you want to perform this operation?” The confirmation dialog should have a YES and NO button. When the user clicks on YES, a message should be shown in a Toast: “You clicked YES”. Otherwise, the message should be shown: “You clicked NO”.

Write the complete code of confirmation dialog.

**FRAGMENTS**

### QUESTION

Write the purpose of fragments and write code of passing a string value “Pakistan” from MainActivity to a fragment.

### QUESTION

Write a code for a button click event that load a fragment named FirstFragment and send it a numeric value “25”. Write the fragment code of MainActivity and the receiving code on Fragment, where the received number is assigned to a textView defined in Fragment layout.



ID:

Delete

25

### QUESTION

Write the purpose of fragments and write code of passing a string value “Pakistan” from MainActivity to a fragment. Write also code in fragment that should concatenate “ Zindabad” with Pakistan and return the whole string. In the MainActivity, the final string “Pakistan Zindabad” should be received.

### QUESTION

Create an application in which the MainActivity passes an ID to a Fragment. The fragment fetches the record of a user from SQLite database and loads it into TextViews defined in Fragment’s layout file.

# DATABASEAPPLICATIONS

### QUESTION

We have the following layout with a delete button.



ID:

Delete

25

Write a method that deletes the row from database whose id is 25.

### QUESTION

We have a following layout:



ID: NAME: ADDRESS:

INSERT

Supply, Abbottabad

Ali

25

Write a method that inserts value in database.

### QUESTION

Suppose we have the following search form:



ID: NAME: ADDRESS:

SEARCH

Based on the search fields in the above form, create a dynamic select query.

### QUESTION

Suppose we have the search form as shown above. Write code to make a dynamic select query. You just need to create the query and nothing else.

### QUESTION

Write an application that asks for an ID from user in Record Search Activity. When the user enters the ID, the record is shown against the ID in the Record View Activity. The record is fetched from SQLite Database.

Record Search Activity

View Record Activity



Enter ID

**SEARCH**

ID NAME

AGE ADDRESS

Abbottabad

, Pakistan

45

Osman

25

### QUESTION

We have a following layout:



ID: NAME: ADDRESS:

UPDATE

Supply, Abbottabad

Ali

25

Write a method that update value in database against ID = 25.

**SHARED PREFERENCES**

### QUESTION

Briefly explain the purpose of SharedPreferences class along with an example of saving a textbox string value and retrieving a stored string value in textbox.

### QUESTION

Suppose in a button click event you have initialized a SharedPreferences class object *as sp = getSharedPreferences(mypreference, Context.MODE\_PRIVATE);*

Write code to retrieve values of name and email whose keys are “NAME”, and “EMAIL”. The retrieved values should be set to textViewName and textViewEmail. (HINT: Use if statements.)

**CREATING A WEB VIEW**

### QUESTION

Write code we use in onCreate method to load a web page using WebViewClient. Assume that MyBrowser class extended from WebViewClient is already defined.

ANSWER:

// our code//

String url = "[http://192.168.137.1/skillmate/index.php";](http://192.168.137.1/skillmate/index.php)

privateWebView wv1=(WebView)findViewById(R.id.webView); wv1.setWebViewClient(new MyBrowser());

wv1.getSettings().setLoadsImagesAutomatically(true); wv1.getSettings().setJavaScriptEnabled(true); wv1.setScrollBarStyle(View.SCROLLBARS\_INSIDE\_OVERLAY); wv1.loadUrl(url);

# DRAG DROPEXAMPLES

### QUESTION

When performing DragDrop operation, we use a switch statement to see which one of the four actions has been invoked DragEvent.ACTION\_DRAG\_STARTED, DragEvent.ACTION\_DRAG\_ENTERED, DragEvent.ACTION\_DRAG\_EXITED, DragEvent.ACTION\_DROP. Briefly explain with the support of code, what actually happens in the CASE block of DragEvent.ACTION\_DROP.

### QUESTION

Suppose you have two framelayouts. The framelayout1 is containing an imageview. Write code that appears in the CASE block of DragEvent.ACTION\_DROP. You want to drop an imagefrom one framelayout to theother.

### QUESTION

Suppose you have a Framelayout1 and Framelayout2. You want to drag an imageView from Framelayout1 and drop it in Framelayout2. Write the code required in body of

caseDragEvent.ACTION\_DROP:

// write your code here break;

### QUESTION

Suppose you have a layout with RelativeLayout as main layout and there are four RelativeLayouts on the main RelativeLayout. Each of the four RelativeLayouts has a single ImageView pic. A count of number of pictures on each RelativeLayout should be shown when an image is dragged and dropped from one RelativeLayout to other. The count should beshown inTextViews.

### QUESTION

Suppose we just want to drag a image from one place to another on a relative layout. Write code of onTouch event

ANSWER

publicbooleanonTouch(View view, MotionEventmotionEvent)

{

if (motionEvent.getAction() == MotionEvent.ACTION\_DOWN)

{

ClipData data = ClipData.newPlainText("","");

View.DragShadowBuildershadowBuilder = newView.DragShadowBuilder(view); view.startDrag(data, shadowBuilder, view,0);

view.setVisibility(View.INVISIBLE); return true;

}

else

{

return false;

}

}

**SENDING SMS**

### QUESTION

Write brief code in which you create an object of SmsManager class and send a string message “hello” to a phoneNo 03335693579

### QUESTION

Write code to send sms using Intent.

**QUESTION**

Suppose you want to create an application that receives ansms with a secret code. If the code matches with a predefined code, your application returns your GPS location in the form of SMS. Explain what programming components, classes, functions, etc you will require to achieve that task and how those components will interact. You can write the flow diagrams etc to support your answer.

**QUESTION**

Suppose you have to develop an application that needs to track your current GPS location, and update it on the GUI. When an SMS is received by the application, your GPS coordinates are sent back to the number from which the SMS has arrived. Don’t just write a single paragraph in answer.

Clearly define the name and purpose of classes you will require to write this application. Write the functionality of each class, supported with pseudocode. Draw the class diagram, methods in each classes, and their functionalities to achieve the task.